

QUALITY ASSURANCE PROVISIONS

C-321: SPECIFICATION:

NSN: 9G-1560-00-402-8654 P/N: (26512) 1128CE40175-4

NOMEN: CANOPY, EA-6B

Articles to be furnished hereunder shall be manufactured, tested and inspected in accordance with drawing number (26512) 1128CE40175-4 REV. "E ", Design Specification CE-128CS-1F and **C-321 para. II,B**, and all details and specifications referenced therein.

The contractor shall deliver 2 unit(s) of lot/item 0001 within 180 calendar days from the date of this contract. 1 unit for First Article Testing Government (I-961), and 1 unit for First Article Testing Contractor (I-961).

I. Quality/Inspection Requirements

- A. MIL-I-45208 or equivalent applies: Refer to contract section E.
- B. First Article Testing applies: Refer to contract section I
- C. Mandatory Inspection applies: Refer to contract section C.

II. Supplemental Requirements

- A. Additionally, para. 3.1-3.5, 5.1-5.2, 6.1-6.2 of MIL-Q- 9858 or equivalent apply.
- B. Required changes to current Grumman CE-128CS-1F Specification EA-6B Qualification Testing

Abrasion

Grumman CE-128CS-1F Specification Section - None
Per ASTM F 735

- 4 Calibrate motor speed to 300 strokes per minute. Sand used for calibration shall be discarded.
- 5 Measure transmission and haze prior to testing specimen.
- 6 Mount specimen in holding plate, using protective means to prevent abrasion or scratching of bottom surface of specimen.
- 7 Cover specimen with sand to a uniform depth of 13 mm (0.50 in.)
 - 7.1 A given batch of sand may be used for a maximum of 600 strokes. New sand shall be used for each specimen tested.
- 8 Subject the specimen to 100, 200, 300, and 600 strokes.
- 9 After each increment of strokes, remove the specimen from the holder. Handle specimen by the edges only. Wash with distilled water for a minimum of 10 seconds.
- 10 Measure transmittance and haze.

Requirement: Delta Haze shall be no more than 25% after 600 strokes.

Adhesion

Grumman CE-128CS-1F Specification Section - 4.3.3 and 4.4.4

Per ASTM D 3359

- 4 Select an area free of blemishes and minor surface imperfections. Ensure the surface is clean and dry.
 - 4.1 For specimens that have been immersed: clean and wipe the specimen with a solvent that will not harm the integrity of the coating. Dry and prepare the specimen.
- 5 Make 2 cuts in the film each about 40 mm (1.5 in.) long that intersect near their middle with a smaller angle of between 30 and 45°.
- 6 Inspect the cut to make sure the coating film has been penetrated. If the substrate has not been reached, make another cut in a different location.
- 7 Remove 2 complete laps of pressure-sensitive 3M #250 tape from a role and discard. Remove an additional length at a steady rate and cut a piece approximately 75 mm (3 in.) long.
- 8 Place the center of the tape at the intersection of the cuts. Smooth the tape into place then rub firmly until good contact has been made.
- 9 Within 90 ± 30 seconds of application, remove the tape by seizing the free end and pulling it rapidly back upon itself as close to an angle of 180° as possible.
- 10 Inspect the area for removal of coating.
- 11 Repeat this process in 5 other locations on each test panel.

Requirement: There shall be no removal or degradation of coating.

Humidity

Grumman CE-128CS-1F Specification Section - 4.3.1

Per ASTM F 520

- 4 Expose the test specimen to 13 cycles of condensing humidity in a chamber with a controlled temperature of $120 \pm 5^\circ\text{F}$ and a relative humidity of 90 – 100%.
 - 4.1 Water used to maintain humidity shall not contain more than 200 ppm total solids.
- 5 Each cycle shall be a 16-hour exposure in the condensing humidity chamber and an 8-hour exposure to ambient temperature and humidity.

Requirement: There shall be no change in the optical and external threat protection qualities of the specimen.

RF Attenuation

Grumman CE-128CS-1F Specification Section - 3.3.4

Requirement: Minimum 23 dB at 3.0 GHz.

Temperature Cycling Test

Grumman CE-128CS-1F Specification Section - 4.3.2

4 The specimen shall be placed in a chamber with a temperature of $-65 \pm 5^{\circ}\text{F}$.

4.1 The chamber will be held at this temperature for 15 minutes.

5 The temperature shall be permitted to rise until it reaches $175 \pm 5^{\circ}\text{F}$.

5.1 The chamber will be held at this temperature for 15 minutes.

6 This shall be repeated for a total of 500 cycles.

Requirement: There shall be no change in the optical and external threat protection qualities of the specimen.

Chemical Craze Testing

Grumman CE-128CS-1F Specification Section - None

Per ASTM F 791

1. Place the specimen in the fixture handling only by the edges.

2. Apply a load of 2000 psi to the specimens for 10 ± 0.5 min and observe to be sure no craze has occurred.

3. Place a piece of filter paper 12.5 mm wide by 25 mm long (1/2 in by 1 in) directly in the center of the specimen so there is a clear area along each edge to avoid edge crazing.

4. Apply the test chemical to the filter paper only.

4.1 Chemicals to be tested include:

Isopropyl Alcohol, Toluene, MEK, Jet Fuel (JP-4 JP-8), Hydraulic Fluid, Navy Plastic Polish PP-560, Alodine 1200, Airplane Wash Cleaner MIL-C-8514 or MIL-C-85570, Ethylene glycol, Naptha, Repcon, 50/50 Methonol-Water Solution, ACF-50, COR-BAN-35.

1. Keep the filter paper moist with the chemical for 30 minutes.

2. Remove the filter paper after the test period and inspect for craze.

Requirement: No crazing should occur at or below a stress level of 2000 psi at room temperature. Coating materials should not deteriorate (i.e. wrinkle, dissolve, discolor, etc.)

First Article Testing shall consist of two (2) each. ALL FIRST ARTICLE TESTING TO BE WITNESSED BY THE GOVERNMENT (NAVICP, NAVAIR, NADEP-Jax, and DLA/DSCR)

1. One (1) of each part number shall be complete manufactured for (First Article Government Testing). Test to be performed are: Fit Check (on aircraft at NADEP-Jax), on-aircraft pressurization check I/A/W MIL-E-18927 (on aircraft at NADEP-Jax), Dimensional Check 100% (at contractor facility with government witnessing), and Requirements of GSS11803A optical requirements (at contractor facility with government witnessing).

2. One (1) of each part number shall be formed with coatings only, and without edging for (First Article Contractor Testing). Test to be performed are: Dimensional Check 100%, Requirements of GSS11803A optical requirements, Compliance with drawing (26512) 1128CE40175 and (26512) 1128CE40176 and Design Specification CE-128CS-1F and **C-321 para. II,B**, and all specifications referenced therein, RF Attenuating Coating I/A/W CE-1128TP-1, CE-128CS-1F and **C-321 para. II,B**, data should include but not be limited to abrasion testing and environmental testing, And all requirements to be incorporated from a, b, c and d of **C-321 para. II**, and review documentation as provided under DD 1423 requirements.

New procedure to be submitted by Contractor and approved by NAVAIR.

C. The contractor shall include on the detailed process/operation sheets developed, all in house manufacturing processes and the identity of all manufacturing sources performing processes/ operations outside of their facilities. These sheets shall not be revised or altered after the successful completion of First Article or Production Lot Testing without approval from the basic design engineering activity via the PCO.

D. The Inspection Method Sheets which list the characteristics of each item produced under the contract shall have serial number traceability to the raw material, casting, or forging.

E. Markings should be I/A/W MIL-STD-130 REV. "K" para. 5.3.3(a), (b), (c) and (g). Method and location shall be I/A/W drawing.

III. Mandatory Inspection Requirements:

During production, mandatory inspection is required to be accomplished by the contractor as follows:

A. Level of Inspection (LOI).

1) Critical Characteristics: 100% inspection shall apply.

2) Major and Minor Characteristics - LOI shall be I/A/W a sampling plan acceptable to the QAR.

B. Critical Characteristics

1) NOTE 18 of drawing (26512) 1128CE40175-4 and **C-321 para. II,B.**

2) NOTE 19 of drawing (26512) 1128CE40175-4 and **C-321 para. II,B.**

3) NOTE 20 of drawing (26512) 1128CE40175-4 and **C-321 para. II,B.**

- 4) Compliance with drawing (26512) 1128CE40175-4 REV. "E ", Design Specification CE-128CS-1F and **C-321 para. II,B.**, and specifications referenced therein.
- 5) Requirements of GSS11803A optical requirements.
- 6) Review documentation as provided under DD 1423 requirements.

C. Major and Minor Characteristics

- 1) Shall be defined by the contractor subject to QAR concurrence, unless defined on applicable drawings and associated specifications.

IV. Unless expressly provided for elsewhere in this Clause, equipment such as fixtures, jigs, dies, patterns, templates, mylars, special tooling, test equipment, or any other manufacturing aid required for the manufacture and/or testing of the subject item(s) will not be provided by the Government or any other source and is the sole responsibility of the contractor. The foregoing applies notwithstanding any reference to such equipment or the furnishing thereof that may be contained in any drawing or referenced specification.

V. The following manufacturing aid(s) will be furnished for the purpose(s) indicated and shall be returned to the Government after use as intended and not later than the delivery date of the last production item of the contract:

<u>EQUIPMENT</u>	<u>PURPOSE</u>	<u>COGNIZANT ACTIVITY</u>
NSN: 9G-1560-00-402-8654 P/N: (26512) 1128CE40175-4 (PREFERABLY A NON-RFI ITEM PREVIOUSLY INSTALLED ON AN AIRCRAFT)	(MANUFACTURING AID)	DSCR

CONTRACT DATA REQUIREMENTS LIST

(2 Data Items)

Form Approved

OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to the above address. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A.CONTRACT LINE ITEM NO.		B.EXHIBIT		C.CATEGORY: TDP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input type="checkbox"/>	
D. SYSTEM/ITEM 9G-1560-00-402-8654		E.CONTRACT/PR NO.		F.CONTRACTOR	
1.DATA ITEM NO. 0001		2.TITLE OF DATA ITEM CERTIFICATION DATA REPORT		3.SUBTITLE COMPLETED PROCESS/OPERATION SHEETS	
4.AUTHORITY (Data Acquisition Document No.) DI-MISC-80678		5.CONTRACT REFERENCE C-321 SPECIFICATION		6.REQUIRING OFFICE DSCR	
7.DD250 REQ LT		9.DIST STATEMENT REQUIRED		10.FREQUENCY AS REQUIRED	
8.ADP CODE A		11.AS OF DATE		12.DATE OF FIRST SUBMISSION SEE BLK. 16*	
16.REMARKS * AT TIME OF COMPLETION OF FIRST ARTICLE TESTING ** UPON SUBMISSION OF PRODUCTION LOT SAMPLES *** IF THE PROCESS OPERATIONS CHANGE AFTER APPROVAL OF FIRST PRODUCTION LOT TESTING/PRODUCTION LOT SAMPLES		13.DATE OF SUBSEQUENT SUBMISSION SEE BLK. 16**/**		14.DISTRIBUTION a. ADDRESSEE Draft Final Reg Repro CAO/QAR */*** 1/0 DSCR/JUPD */*** 1/0 AIR CODE */*** 1/0 4.3.4.4 NAVICP */*** 1/0 0731 15.TOTAL 4/0	
1.DATA ITEM NO. 0002		2.TITLE OF DATA ITEM CERTIFICATION DATA REPORT		3.SUBTITLE COMPLETED INSPECTION METHOD SHEETS	
4.AUTHORITY (Data Acquisition Document No.) DI-MISC-80678		5.CONTRACT REFERENCE C-321 SPECIFICATION		6.REQUIRING OFFICE DSCR	
7.DD 250 REQ LT		9.DIST STATEMENT REQUIRED		10.FREQUENCY AS REQUIRED	
8.ADP CODE A		11.AS OF DATE		12.DATE OF FIRST SUBMISSION SEE BLK. 16*	
16.REMARKS * AT TIME OF COMPLETION OF FIRST ARTICLE TESTING ** UPON SUBMISSION OF PRODUCTION LOT SAMPLES AND AT TIME OF CONTRACT COMPLETION, CONTRACTOR SHALL RETAIN 100% OF CONTRACT QUANTITY RECORDS FOR SEVEN YEARS.		13.DATE OF SUBSEQUENT SUBMISSION SEE BLK. 16**		14.DISTRIBUTION a.ADDRESSEE Draft Final Reg Repro CAO/QAR */** 1/0 DSCR/JUPD ** 1/0 AIR CODE */** 1/0 4.3.4.4 NAVICP */** 1/0 0731 15.TOTAL 4/0	
G.PREPARED BY VINCENT J. LOISEAU 0731.14		H.DATE 02/11/03		I.APPROVED BY VINCENT J LOISEAU	
				J.DATE 02/11/03	

CONTRACT DATA REQUIREMENTS LIST

(2 Data Items)

Form Approved

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A. CONTRACT LINE ITEM NO.		B. EXHIBIT		C. CATEGORY:			
				TDP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input type="checkbox"/>			
D. SYSTEM/ITEM		E. CONTRACT/PR NO.		F. CONTRACTOR			
9G-1560-00-402-8654							
1. DATA ITEM NO.		2. TITLE OF DATA ITEM		3. SUBTITLE			
0003		REQUEST FOR DEVIATION					
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE		6. REQUIRING OFFICE		
DI-CMAN-80640					DSCR		
7. DD250 REQ		9. DIST STATEMENT REQUIRED		10. FREQUENCY		12. DATE OF FIRST SUBMISSION	
LT				AS REQUIRED			
8. ADP CODE				11. AS OF DATE		13. DATE OF SUBSEQUENT SUBMISSION	
16. REMARKS ORIGINAL				a. ADDRESSEE		b. COPIES	
				Draft		Final	
						Reg	
						Repro	
				DSCR/JUPD		1/0	
				15. TOTAL		1/0	
				1. DATA ITEM NO.		2. TITLE OF DATA ITEM	
0004		REQUEST FOR WAIVER					
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE		6. REQUIRING OFFICE		
DI-CMAN-80641					DSCR		
7. DD 250 REQ		9. DIST STATEMENT REQUIRED		10. FREQUENCY AS REQUIRED		12. DATE OF FIRST SUBMISSION	
LT				AS REQUIRED			
8. ADP CODE				11. AS OF DATE		13. DATE OF SUBSEQUENT SUBMISSION	
16. REMARKS ORIGINAL				a. ADDRESSEE		b. COPIES	
				Draft		Final	
						Reg	
						Repro	
				DSCR/JUPD		1/0	
				15. TOTAL		1/0	
				G. PREPARED BY		H. DATE	
VINCENT J. LOISEAU 0731.14		02/11/03		VINCENT J LOISEAU		02/11/03	

FIRST ARTICLE TESTS REQUIRED (CONTRACTOR TESTING)

III. **NOTIFICATION OF TESTING:** The contractor shall notify the PCO, ACO, and QAR prior to conducting First Article Tests so that the Government may witness such testing (see I-962, Para. (A)). The total First Article Test units will be two (1 for Government testing and 1 for Contractor testing).

- A. The QAR shall be present to witness all First Article Tests.
- B. The following additional personnel shall witness First Article Testing.

NAVICP Philadelphia
Code: 0731.14/Vincent Loiseau and 073.7/Mark Fitting

NAWC-WD China Lake
Code: 4B1100D/Don Decker

NAVAIR Patuxent River
Code: 4.3.5.4/Jaimie Cosgrove

NADEP Jacksonville
Code: 4.3.4.4/Terry Taylor

FIRST ARTICLE APPROVAL (GOVERNMENT TESTING)

A. The contractor shall deliver 1 unit(s) of lot/item 0001 within 180 calendar days from the date of this contract to the Government at:

**Commanding Officer
Naval Air Depot
Attn: First Article Testing Office (Larry Giggey)
Door – 16
NAS Jacksonville, FL 32212-0016
(904) 542-0790**

The tests to be performed under the First Article approval clause of the contract are:

- A. Fit/Check
- B. An on-aircraft cockpit pressurization check I/A/W MIL-E-18927.
- C. Compliance with drawing (26512) 1128CE40175-4 REV. "E", Design Specification CE-128CS-1F and **C-321 Para. II, B.**, and specifications referenced therein.
- D. Review documentation as provided under DD 1423 requirements.